

PROCEEDINGS
OF THE
BIOLOGICAL SOCIETY OF WASHINGTON

A NEW SUBTIDAL *SYNIDOTEA* FROM CENTRAL
CALIFORNIA (CRUSTACEA: ISOPODA)

BY ERNEST W. IVERSON
Department of Invertebrate Zoology
California Academy of Sciences
San Francisco, California 94118

The systematics and zoogeography of the isopod genus *Synidotea* have been recently reviewed by Menzies and Miller (1972). They recognize 36 valid species and subspecies in the genus, eight of which have been reported from California. Six of these species have emarginate pleotelsons, while two subtidal species, from southern California, have broadly rounded, spatulate pleotelsons. The present paper describes a third species characterized by a spatulate pleotelson. The new species was discovered among benthic debris otter trawled by the *R/V Searcher* on the 100 fathom (183 meters) contour off of Point Soberanes while collecting fish for Steinhart Aquarium, California Academy of Sciences in July 1971.

I am grateful to Dr. Milton A. Miller (University of California, Davis) for the many helpful suggestions made during the preparation of this paper, and for his critical review of the manuscript. Mr. James T. Carlton (California Academy of Sciences) offered helpful suggestions with the manuscript, and Dr. John S. Garth (University of Southern California) provided space for the study of the types of *Synidotea magnifica* Menzies and Barnard, 1959 and *S. calcarea* Schultz, 1966. Dr. Earl S. Herald (Steinhart Aquarium, California Academy of Sciences) arranged ship time on the *R/V Searcher* through the Janss Foundation, Thousand Oaks, California.

Family Idoteidae Dana, Miers, 1881
Genus *Synidotea* Harger, 1878

Diagnosis: Flagellum of antenna 2 multiarticulate. Maxilliped palp composed of 3 articles. Pereonites 2-4 with coxal sutures present, not

visible in dorsal view, pereonites 1, 5, 6, and 7 completely fused with pereon. Pleon composed of a single segment, with partial suture line on either side at base indicating another partly coalesced segment.

***Synidotea media* new species**

Figures 1 and 2

Diagnosis: Preocular horns of female directed anteriorly, sloping gently to the side, extending only slightly beyond frontal margin; anteromedial tubercles tall and narrowly rounded. Dorsum of cephalon bearing 2 large conical tubercles between eyes. Three rows of low tubercles on dorsum of pereonites 1 to 4; lateral edge of partly coalesced pleonal segment truncate. Spatulate pleotelson bluntly rounded, posterolateral margin with 1 or 2 teeth.

Supplementary description: Anterior margin of cephalon concave with a slight, broad medial notch (somewhat deeper in male), frontal process triangular, extending to anterior end of article 1 of the first antenna. Eyes raised, forming part of lateral margins of head with many heavily pigmented ocelli. Preocular horns of female large, directed anteriorly, extending slightly beyond frontal margin, smaller in male, not extending to frontal margin. Anteromedial tubercle narrowly rounded, projecting anteriorly to the edge of the cephalon. Tubercles between eyes large, forming a bilobed ridge.

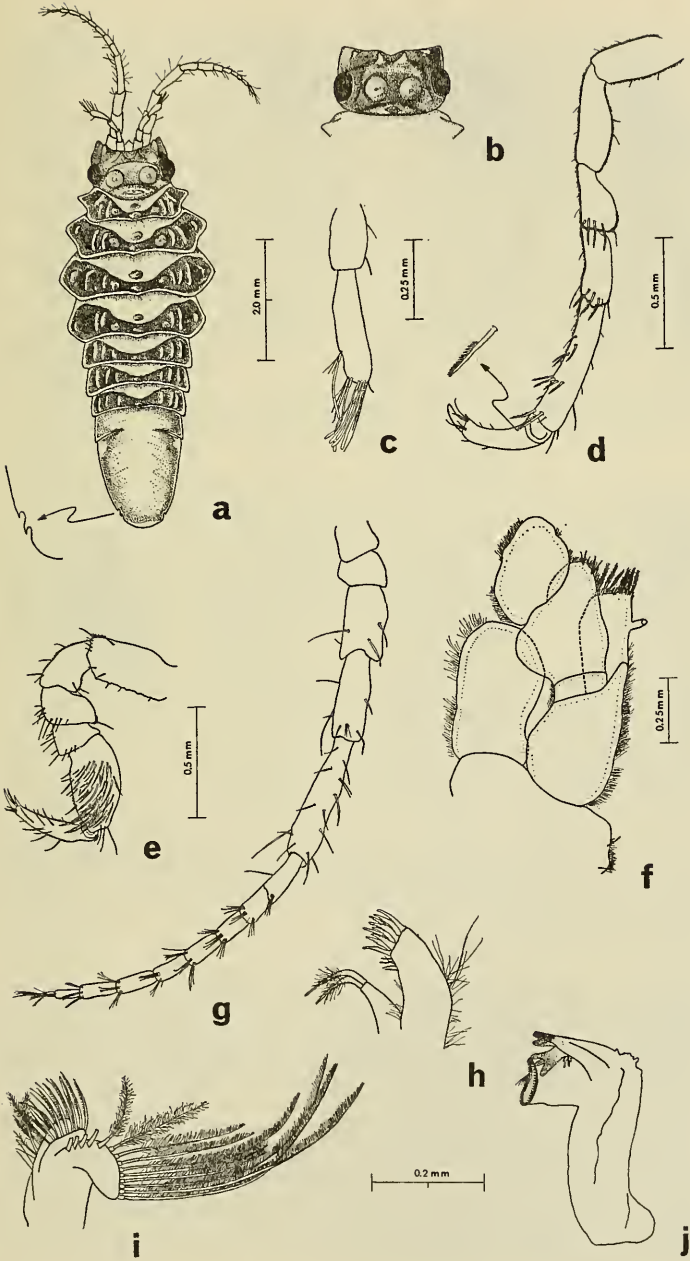
Antenna 1 composed of 4 articles, extending to middle of third peduncular article of antenna 2. First 2 articles of antenna 1 equal in length; slightly shorter than articles 3 and 4. Article 4 with 3 aesthetascs on anteromedial surface. Peduncle of antenna 2 with 5 articles; first 2 short, equal in length. Article 3 equal to article 4, and about twice the length of second, fifth article $1\frac{1}{2}$ times the length of article 4. Flagellum of 9 or 10 articles; the first long and partially sutured at midlength.

Mouthparts normal. Incisor of mandible with 4 teeth, lacinia with 3 teeth; molar process truncate, bearing a setal brush and many small teeth along the margin. First maxillary exopod with 9 spines, many dentate, endopod with 2 long sensory setae. Second maxilla, long plumose setae on outer ramus, ctenoid setae on medial ramus, and several irregular types of setae on the inner ramus. Endite of maxilliped with 1 coupling hook on medial edge; sensory edge with many plumose setae.

Dorsum of each pereonite divisible into a smooth, depressed anterior area and an elevated, sculptured posterior area. Elevated areas are broad laterally, becoming progressively narrower and somewhat carinate medially. There are 3 or 4 rugae on lateral elevated area of each pereonite.

→

FIG. 1. *Synidotea media*, new species. A, female holotype; B, cephalon of immature male; C, apex of first antenna; D, seventh pereopod; E, first pereopod; F, maxilliped; G, second antenna; H, first maxilla; I, second maxilla; J, mandible.



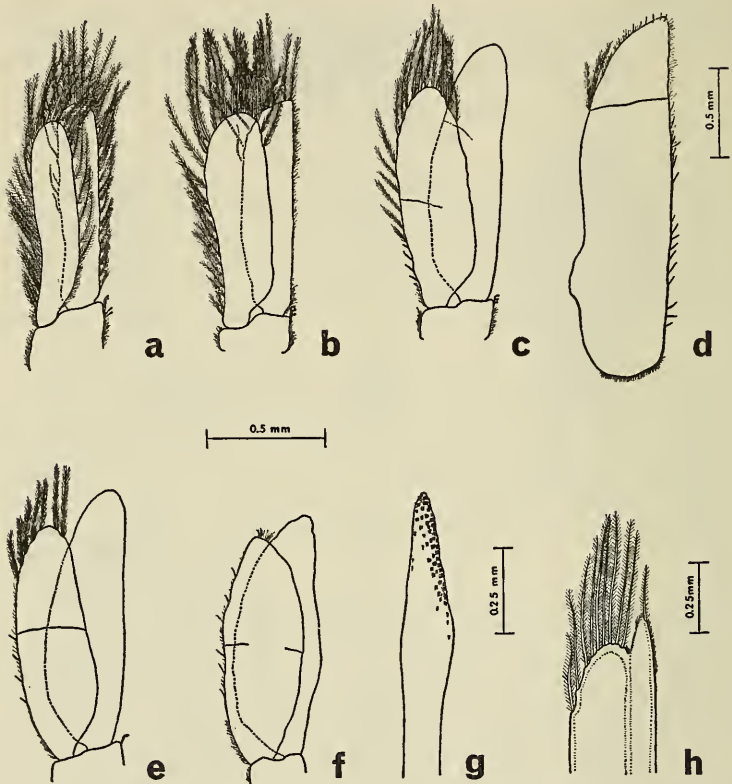


FIG. 2. *Synidotea media*, new species. A, first pleopod; B, second pleopod; C, third pleopod; D, uropod; E, fourth pleopod; F, fifth pleopod; G, apex of appendix masculina of paratype 2; H, immature appendix masculina of paratype 1.

Pereon with a median longitudinal row of tubercles; in female 2 on first 4 pereonites and 1 on last 3; in male 2 on first pereonite and only 1 on pereonites 2 to 7. First 4 pereonites in both sexes also bear a tubercle on each side of median row, thus forming 3 longitudinal rows. Lateral margin of first pereonite split into an upper and lower lobe.

Pereopod 1 shorter and broader than pereopods 2-7; bearing many ctenoid setae on anterior margin of propodus. Dactylus tri-unguiculate, narrower than propodus. Pereopod 7 with a row of 4 stout setae at distal margin of merus and carpus. Propodus with a row of 4 stout setae at about $\frac{2}{3}$ the distance to distal end which bears a large denticulate seta and a ctenoid seta on inner margin.

Exopod of first pleopod with plumose marginal setae (PMS), endopod with PMS on medial edge and apex. Exopod of second pleopod with PMS on lateral margin and apex, endopod lacking PMS. Both rami with partial sutures. Exopod of fourth pleopod with PMS on apex only, two jointed; endopod lacking PMS, fleshy. Exopod of fifth pleopod partially jointed with a few simple setae; endopod fleshy. Uropod uniramous with 3 PMS at the posterolateral angle of the basal joint. Penes fused into a single rectangular process attached to sternite of seventh pereonite.

Color white; with cephalon, pereonal segments 1 and 4, and pleotelson dark red when collected. In alcohol the red has faded to light grey.

Measurements: Holotype, ovigerous female, length 6.4 mm, width 2.5 mm at pereonite 3; paratype 1, immature male, length 6.9 mm, width 1.9 mm; paratype 2, adult male in poor condition, length 8.7 mm, width 2.3 mm.

Type-locality: Southwest of Point Soberanes, California, between latitudes 36° 25' 7" north and 36° 26' 23" north on the 100 fathom (183 meters) contour.

Distribution: Known only from the type-locality.

Disposition of material: The types have been deposited in the type-series of the California Academy of Sciences, Department of Invertebrate Zoology, holotype no. 563; paratype 1, no. 564, and paratype 2, no. 565.

Etymology: The species name *media* is from the Latin meaning middle, referring to the close, intermediate relationship of this species between *S. magnifica* and *S. calcarea*.

Relationships: *S. media* may be distinguished from the closely related *S. magnifica* and *S. calcarea* by the characters given in Table 1. *S. bogorovi* Gurjanova (1955) from the Okhotsk Sea resembles the three California species in general body shape, but her figure shows a slight emargination of the pleotelson. The figure also shows the eyes entirely on the dorsum of the cephalon, a deep medial notch, and no anterior medial tubercles.

Menzies and Miller (1972) reported a progressive reduction in the sculpturing of the rugae with depth and possibly temperature. *S. magnifica* (55–92 meters) is the most sculptured, *S. media* (183 meters) is slightly more sculptured than *S. calcarea* (813 meters), and all three species are more sculptured than *S. bogorovi* (2,300 meters). The median frontal notch is deepest in *S. magnifica*, broad and shallow in *S. media*, and lacking in *S. calcarea*. It is quite deep, however, in *S. bogorovi*. Based on the holotypes, the pleotelson indices (PI = length/width) decreases with depth: *S. magnifica* (1.31), *S. media* (1.37), and *S. calcarea* (1.44).

The morphological similarities compared with distributional data suggest that the three California species evolved from a common ancestor. Definite conclusions can not be made at this time, because the latitudinal and bathymetric distribution of only one species, *S. magnifica*, is reasonably well known.

TABLE 1. Similarities and differences between *Synidotea magnifica*, *S. media*, and *S. calcarea*

Character	<i>S. magnifica</i>		<i>S. media</i>	<i>S. calcarea</i>
	<i>S. magnifica</i>	<i>S. magnifica</i>	<i>S. media</i>	<i>S. calcarea</i>
Medial notch of cephalon	pronounced	pronounced	shallow, broad (more distinct in male)	absent
Anteromedial tubercles	broadly rounded, tall	broadly rounded, tall	narrowly rounded, tall	conical, low
Interocular tubercles	small, narrowly rounded	small, narrowly rounded	large, conical	large, conical
Ocelli of eyes	numerous, heavily pigmented	numerous, heavily pigmented	numerous, heavily pigmented	few, lightly pigmented
Lateral margin of first pereonite	entire	entire	bifurcate	entire
Dorsum of pereon	anterior segments tuberculate	anterior segments tuberculate	3 rows of tubercles on segments 1-4	medial row of tall conical tubercles
Flange on basis of pereopods 2-6	present	present	absent	absent
Lateral edge of partly coalesced pleonal segment	broad, slightly rounded	broad, slightly rounded	truncate	narrow, tapering posteriorly
Maximum width of telson	at anterior end	at anterior end	at anterior end	at midlength
Posterolateral margin of pleotelson	smooth	smooth	1-2 teeth	several teeth

LITERATURE CITED

- GURJANOVA, E. F. 1955. The Isopod Crustacean Fauna (Isopoda) of the Pacific Ocean. VI. New Species of Valvifera from the Kurile-Sakhalin Region. *Akademiia Nauk SSSR, Trudy Zoologicheskii Institut* 21:208-230, figures 1-16.
- MENZIES, R. J., AND J. L. BARNARD. 1959. Marine Isopoda on Coastal Shelf Bottoms of Southern California: Systematics and Ecology. *Pacific Naturalist* 1(11):3-35, figures 1-28.
- , AND M. A. MILLER. 1972. Systematics and Zoogeography of the Genus *Synidotea* (Crustacea: Isopoda) with an Account of Californian Species. *Smithsonian Contributions to Zoology*, No. 102:1-33, figures 1-12.
- SCHULTZ, G. A. 1966. Submarine Canyons of Southern California. Part IV. Systematics: Isopoda. *Allan Hancock Pacific Expeditions* 27(4):1-56, plates 1-15.